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Revisions to Canada and United States Annual Estimates of Labour Productivity in the Business Sector

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Statistics Canada
Income and Expenditure Accounts Division

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.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
p	preliminary
r	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
E	use with caution
F	too unreliable to be published
*	significantly different from reference category ($p < 0.05$)

Table of contents

Abstract 4

Revisions to Canada and United States Annual Estimates of Labour Productivity in the Business Sector

1 Introduction 5
2 Revision process 5
3 Impact of revisions on labour productivity 6
4 Conclusion 11

Appendix

I References 19

Abstract

This paper examines the revisions published in 2011 to Canadian and the United States business sector labour productivity estimates and related variables. In addition to the usual three years revision cycle of the Canadian National Accounts, hours worked in Canada were revised back to 1981 to incorporate the historical revision of the Labour Force Survey published in January 2011. The United States National Accounts estimates were revised back to 2003 and hours worked back to 2002.

Revisions to Canada and United States Annual Estimates of Labour Productivity in the Business Sector

1 Introduction

In this paper, we compare recent revisions to the labour productivity (output per hour worked) estimates in Canada and the United States. Initial productivity data are produced on the basis of gross domestic product (GDP) and hours worked estimates, which are eventually revised when additional and more precise data sources become available.

Revisions to Canadian labour productivity estimates were made in June 2011 and in December 2011 and incorporate the latest available estimates of GDP[1] and the annual benchmarks on hours worked. These revisions relate to the period 2008 to 2010 for GDP estimates, while the estimates of hours worked were revised back to 1981. In August 2011, revisions were also made to labour productivity estimates in the United States for the period 2002 to 2010, resulting from revisions[2] to the estimates of GDP and hours worked. United States GDP estimates were revised back to 2003,[3] while the estimates of hours worked were revised back to 2002.

2 Revision process

The estimates of labour productivity that are produced by the Canadian Productivity Accounts are subject to two types of revisions.

The first type of revision is a series of annual revisions in the GDP that goes back over a three-year period (*Statistics Canada, 2011*). For example, with this revision cycle, the initial estimate of GDP first released in February of 2008 was revised annually over the three subsequent annual revisions cycles, as more detailed and accurate data become available to the Canadian System of National Accounts (CSNA).

Initial estimates of GDP by industry are derived from benchmark estimates using a small number of readily measured series (for example, the GDP in Taxi and Limousine Services industry is projected using data from the Survey of Employment, Payrolls and Hours [SEPH] estimate of employment growth). The industry estimates are gradually supplemented with more detailed and accurate data that are obtained from surveys such as the Annual Survey of Manufactures and from administrative tax records that become available after a lag of one or two years. Similarly, initial estimates of expenditure-based GDP are also calculated from data sources that are eventually replaced by more comprehensive information.

In addition, the labour productivity estimates for year t are revised in year t+1 as new information on hours worked becomes available (improving the first estimates of employment and hours worked that are made using the Labour Force Survey [LFS] and SEPH). These revisions improve the estimates of hours worked because more precise measures of holidays and other non-random events are used (*Maynard 2005*). Revisions also occur if the employment estimates for the non-commercial sector are revised. This is because the business sector estimate is obtained residually after removing the non-commercial sector from the total economy.

1. These estimates are derived from the expenditure side of the National Accounts valued at market prices.
2. Revisions originate from the incorporation of revised estimates of the US National Account by the *Bureau of Economic Analysis* as well as the incorporation of 2007 Economic Census final data on employment.
3. In addition to the regular revision of estimates for the most recent three years (2008-2010), US GDP was revised back to 2003. As GDP estimates for the reference year (2005) were revised, this results in revisions to GDP indexes for the entire historical period. Revisions to the annual growth rates of GDP before 2008 tend to be very small.

The second type of revision, referred to as historical or comprehensive revisions, occur less frequently, roughly once or twice every 10 years.[4] Historical revisions of the CSNA are occasionally carried out to eliminate breaks in some series, to modify classification standards (for example, the movement from the Standard Industrial Classification to the North American Industry Classification System) or to introduce conceptual and methodological changes.

Historical revisions also occur in the employment and hours worked data when the LFS is occasionally benchmarked against data from the most recent Census of Population.[5] The CSNA is currently planning a historical or comprehensive revision[6] with the results to be published in October 2012. The most recent historical revision was completed in December 1997. The results presented below pertain to the first type of revisions noted above.

3 Impact of revisions on labour productivity

In this section, we compare recent revisions to the labour productivity estimates for the business sector in Canada and the United States.

Revisions to Canadian labour productivity estimates were made in June 2011 in order to incorporate the latest available GDP estimates[7] and in December 2011 when revised annual benchmarks on hours worked were published. These revisions relate mainly to the last three years (2008 to 2010). The revisions to estimates of labour productivity, GDP and volume of hours worked, which extend back to 2001, are presented respectively in tables 1 to 3. These tables show the evolution of the estimates over the last eight revision rounds since 2001. The revision cycles of the most recent estimates (2009 to 2010) are not yet completed for the Canadian estimates. Similarly, the 2008 and 2009 estimate of United States GDP will go through at least one more revision cycle. The estimates produced during the first three-year revision cycle appear with the footnote marker "1". Other revisions reflect revisions of the "second" type outlined above.

Table 4 shows the impact of revisions on the labour productivity performance of both Canada and the United States for different sub-periods included in the 1981-to-2010 period. The last decade (2000 to 2010) covers the years since the end of the previous peak in productivity growth, which was observed in 2000. The period from 2008 to 2010 correspond to the regular CSNA revision period. The first two decades (1981 to 2000) essentially cover two business cycles and therefore provide a good comparison of differences in long-term trends between Canada and the United States.[8] Productivity estimates of short-term changes are generally more volatile than estimates of changes over the long term.

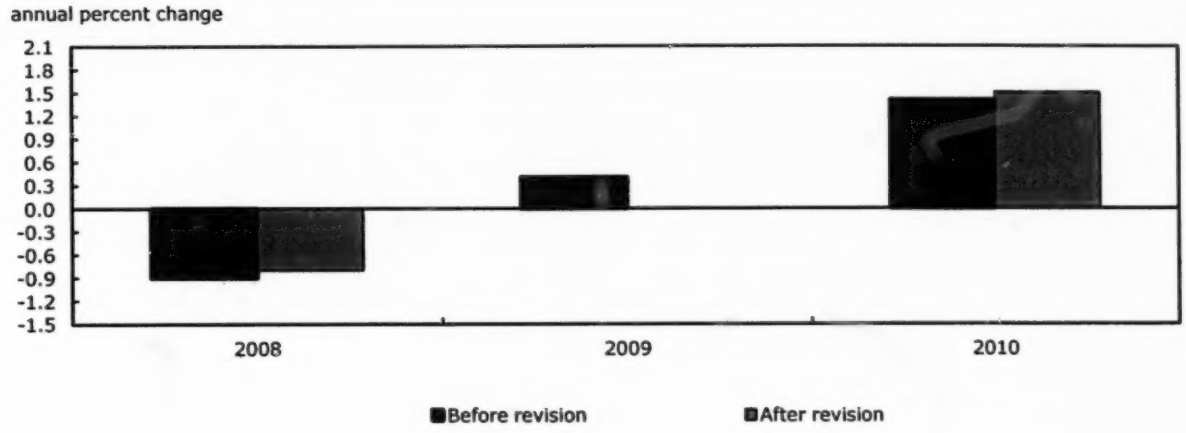
The remainder of this article is divided into three parts. The first part looks at the revisions to Canadian productivity for the period 2008 to 2010 (the regular Canadian revision cycle). The second part examines the revisions to United States productivity for the same period. The final section looks at the impact revisions to GDP and hours worked prior to 2008 have had on comparisons in the productivity in both countries over the preceding three decades.

3.1 Impact of Canadian revisions from 2008 to 2010

The annual percent change of productivity in Canadian businesses was revised up from a decrease of 0.9% to a decline of 0.8% for 2008, and revised down from an increase of 0.4% to zero growth for 2009. The 2010 growth rate was slightly revised up from 1.4% to 1.5%.

4. For example, for the United States, the revisions in August 2009 are of the 'second' type. As it does every five years, the United States made historical revisions to its labour productivity estimates in the month of August 2009.
5. For example, in January 2011, following the release of final population estimates from 2006 Census, a historical revision is applied to the LFS estimates. As a result, the annual series of hours worked have been revised back to 1981.
6. For more information on the change to the revision cycle and on the CSNA historical revision, consult the National Economic Accounts website.
7. Recent productivity data are produced on the basis of preliminary GDP estimates, which are eventually revised when additional and more precise information becomes available to the National Accounts.
8. Quarterly measures of productivity in the Canadian business sector are available from 1981 onward.

Chart 1
Labour productivity in Canada (before and after revision)



The trend in the annual growth rate of productivity remained similar to previously published estimates: there was a decline of productivity in 2008, little change in 2009 followed by an increase in 2010.

For the period from 2008 to 2010, the average annual growth in productivity was revised downward by 0.2 percentage points. During this period, productivity rose at an annual average rate of 0.7%, compared with 0.9% in the first estimate.

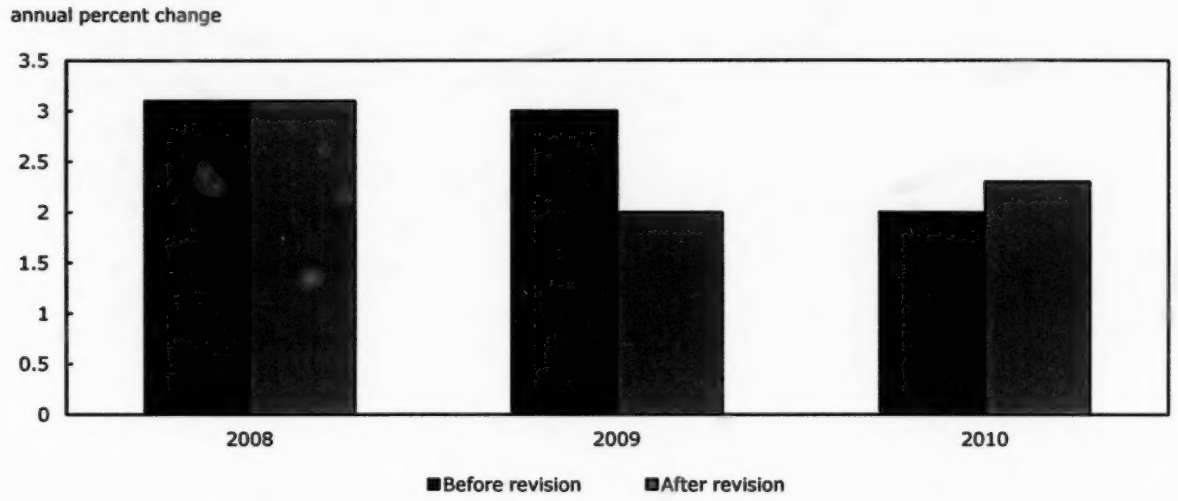
This downward revision to labour productivity over the period reflects the downward revision to Canadian GDP resulting from the last round of annual revisions. In particular, the first estimates of GDP for 2009 were stronger than the final estimates.

3.2 Revisions to hourly compensation of Canadian businesses

The annual growth rates of hourly compensation (average compensation per hour worked) in Canadian businesses were unchanged in 2008 and revised downward by 1.0 points in 2009. The 2010 growth rate was revised upward from 2.0% to 2.3%.

The largest revision was that of 2009. It stems entirely from downwardly revised estimates of total labour compensation (revised downward by 1.0 percentage points). Revisions in 2009 reflect the incorporation of data from Canadian T4 administrative data file as well as from other benchmark sources such as pension information.

Chart 2
Hourly Compensation in Canada (before and after revision)

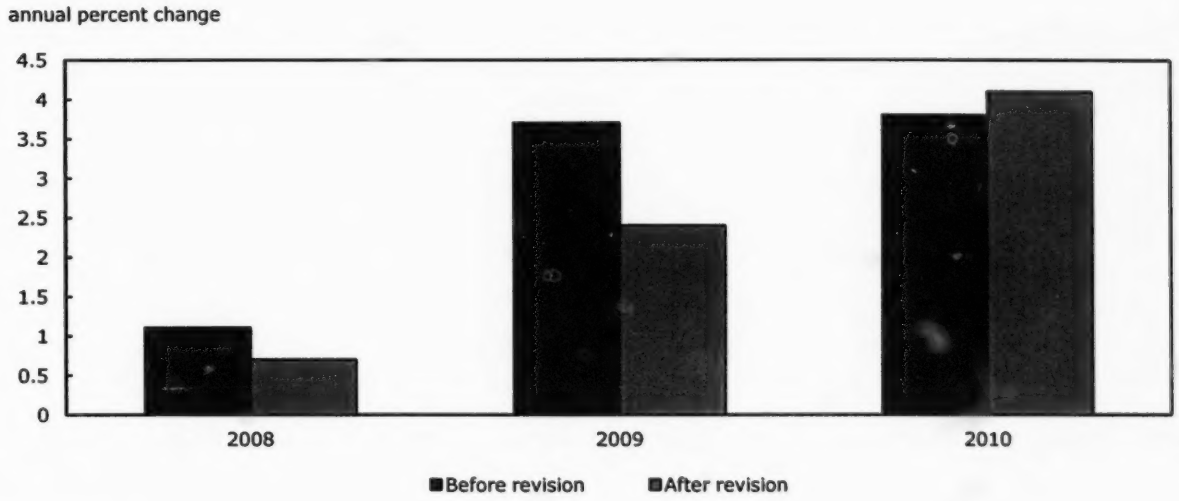


3.3 Impact of American revisions from 2008 to 2010

For the period 2008 to 2010, revisions to the annual growth rates of labour productivity in American businesses were more pronounced—revised downward by 0.4 percentage points in 2008 and upward by 0.3 percentage points in 2010.

In 2009, the growth in productivity was substantially revised downward, by 1.3 percentage points. The initial estimate of the annual productivity growth rate for 2009 was 3.7%; the latest estimate is 2.4%.This substantial revision reflects a downward revision in US GDP in 2009.

Chart 3
Labour productivity in the United States (before and after revision)



For the period from 2008 to 2010, the revised estimates show that average annual productivity increased 3.3%, 0.5 percentage points less than the previously published estimates indicated.

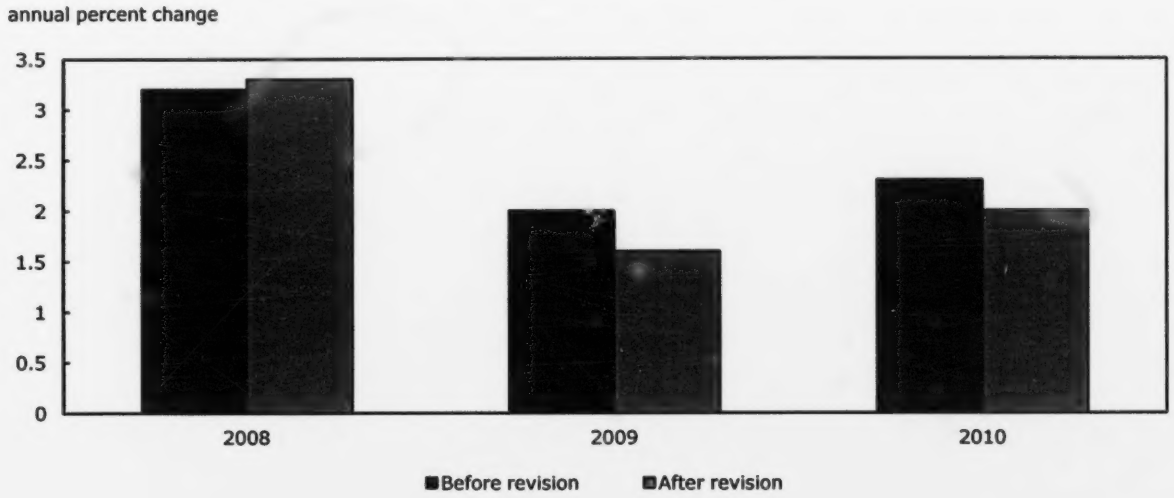
Between 2002 and 2009, the United States has revised downwards its initial estimates of labour productivity. During this period, revisions have reduced productivity growth, on average by 1.0 percentage point on an annual basis.

3.3.1 Revisions to hourly compensation of American businesses

The annual growth rates of hourly compensation in American businesses were revised upward by 0.1 percentage points in 2008, downward by 0.4 percentage points in 2009 and 0.3 points in 2010.

All of the revisions reflect a revision in total labour compensation, as the annual increase in hours worked was virtually unchanged in each of the three years.

Chart 4
Hourly Compensation in the United States (before and after revision)



3.4 Long run impact of the revisions on the gap in labour productivity between Canada and the United States

The impact of the various revisions made to GDP and hours worked from 1981 to 2010 on both sides of the border have resulted in a decline of 0.1 percentage points in the productivity growth gap between the two countries over the last three decades as a whole (1981 to 2010). On an annual average basis, labour productivity growth in U.S. businesses is now 0.8 percentage points higher than in Canadian businesses. Prior to the revisions published in 2011, this gap was 0.9 percentage points. For the entire period, this small reduction of the Canada-US gap originates mainly from the downward revision of hours worked in Canada.

When looking at each of the last three last decades separately, we find the impact of the revisions was constrained to the last twenty years. The period 1981 to 1990 continued to register a gap of 0.4 percentage points in favour of U.S. businesses, the same gap that existed before the revision.

Due to the downward revision in hours worked in Canadian businesses, the gap between 1990 and 2000 was revised downward by 0.2 percentage points. During this period, the average annual growth in hourly production in Canada was revised upward from 1.9% to 2.1%, while it remains at 2.2% in American businesses.

The small productivity growth gap noted between the two countries during the previous two decades may arise from slightly different methods used to calculate growth in labour inputs (*Maynard, 2007*). For this period, the most recent data indicated that productivity grew at an annual average rate of 1.7% in Canada, compared to 2.0% in the United States.

Over the last decade (2000 to 2010), the average annual gap in productivity growth in favour of the United States changed from 2.0 percentage points before revision to 1.7 percentage points after revision. With those revisions, the average annual growth rate in productivity over the last decade is now 0.8% in Canada and 2.5% in the United States. The revisions for the last decade resulted from downward revisions to the growth of GDP in American businesses and hours worked in Canada. Over this period, growth in real GDP was identical in both countries, while hours worked increased at a much faster pace in Canada. More precisely, GDP growth of Canadian and American

businesses rose at a same average pace of 1.6% a year from 2000 to 2010. In contrast, hours worked in Canada increased by 0.8% a year on average, while they decreased by 0.9 % in the US.

4 Conclusion

The 1981-to-2010 revisions of GDP and hours worked in Canada (and the 2002-to-2010 revisions of GDP in the United States) served to reduce by 0.1 percentage points the gap in Canada-US labour productivity growth over the historical period from 1981 to 2010.

While the revisions had no impact over the period 1981 to 1990, they had the effect of reducing the gap in productivity growth during the next two decades (1990 to 2000 and 2000 to 2010). The gap in productivity growth between the two countries was revised from 0.3 to 0.1 percentage points for the period 1990 to 2000, while it was revised downward from 2.0 to 1.7 percentage points over the last decade. For a more extensive discussion of the significance of the difference and the causes behind it, see *Statistics Canada (2007)* and *Baldwin, and Gu (2009)*.

4.1 Statistical tables

Table 1
Labour productivity, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
Canada										
First estimates published for 2001 (4th quarter), The Daily release of March 14, 2002	1.2[1]	...	...	...	...	...	...	...	...	...
After the revisions round in 2001 (1st quarter), The Daily release of June 14, 2002	0.8[1]	...	...	...	...	...	...	...	...	...
First estimates published for 2002 (4th quarter), The Daily release of March 14, 2003	0.8[1]	2.2[1]	...	...	...	...	...	...	...	...
After the revisions round in 2002 (1st quarter), The Daily release of June 12, 2003	1.2[1]	1.8[1]	...	...	...	...	...	...	...	...
First estimates published for 2003 (4th quarter), The Daily release of March 12, 2004	1.0[1]	1.9[1]	0.1[1]	...	...	...	...	...	...	...
After the revisions round in 2003 (1st quarter), The Daily release of June 11, 2004	1.4[1]	2.3[1]	0.4[1]	...	...	...	...	...	...	...
First estimates published for 2004 (4th quarter), The Daily release of March 10, 2005	1.7[1]	2.5[1]	0.2[1]	0.0[1]	...	...	...	...	...	...
After the revisions round in 2004 (1st quarter), The Daily release of June 9, 2005	1.5[1]	2.1[1]	0.2[1]	0.0[1]	...	...	...	...	...	...
First estimates published for 2005 (4th quarter), The Daily release of April 26, 2006	1.1	1.4[1]	0.4[1]	0.0[1]	2.2[1]	...	...	...	...	...
After the revisions round in 2005 (1st quarter), The Daily release of June 8, 2006	1.1	1.4[1]	0.0	0.3[1]	2.3[1]	...	...	...	...	...
First estimates published for 2006 (4th quarter), The Daily release of March 12, 2007	1.1	1.4	0.0[1]	0.3[1]	2.1[1]	1.2[1]	...	...	...	...
After the revisions round in 2006 (1st quarter), The Daily release of June 12, 2007	1.1	1.3	0.2[1]	0.0[1]	2.5[1]	1.0[1]	...	...	...	...
First estimates published for 2007 (4th quarter), The Daily release of March 14, 2008	1.1	1.3	0.2	0.0[1]	2.5[1]	1.1[1]	0.5[1]	...	...	...
After the revisions round in 2007 (3rd quarter), The Daily release of December 10, 2008	1.1	1.3	0.2	0.2[1]	2.2[1]	1.4[1]	0.7[1]	...	...	...
First estimates published for 2008 (4th quarter), The Daily release of March 17, 2009	1.1	1.4	0.2	0.2	2.2[1]	1.4[1]	0.7[1]	-1.1[1]	...	...
After the revisions round in 2008 (1st quarter), The Daily release of June 16, 2009	1.1	1.4	0.2	0.2	2.4[1]	1.2[1]	0.4[1]	-1.1[1]	...	...
First estimates published for 2009 (4th quarter), The Daily release of March 16, 2010	1.1	1.4	0.2	0.2	2.4	1.2[1]	0.4[1]	-1.1[1]	0.1[1]	...
After the revisions round in 2009 (1st quarter), The Daily release of June 15, 2010	1.1	1.4	0.2	0.2	2.4	1.1[1]	0.0[1]	-0.9[1]	0.4[1]	...
First estimates published for 2010 (4th quarter), The Daily release of March 15, 2010	1.1	1.4	0.2	0.2	2.4	1.1	0.0	-0.9[1]	0.4[1]	1.4[1]
After the revisions round in 2010 (3rd quarter), The Daily release of December 9, 2011	1.3	1.9	0.1	0.2	2.6	1.3	-0.3	-0.8[1]	0.0[1]	1.5[1]
Difference, original and actual estimates[2]	0.1	-0.3	0.0	0.2	0.4	0.1	-0.8	0.3	-0.1	0.1
United States										
First estimates published for 2001 (4th quarter), Bureau of Labor Statistics release of May 31, 2002	2.0[1]	...	...	...	...	...	...	...	...	...
After the revisions round in 2001 (2nd quarter), Bureau of Labor Statistics release of August 9, 2002	1.1[1]	...	...	...	...	...	...	...	...	...
First estimates published for 2002 (4th quarter), Bureau of Labor Statistics release of June 4, 2003	1.1[1]	4.8[1]	...	...	...	...	...	...	...	...
After the revisions round in 2002 (2nd quarter), Bureau of Labor Statistics release of August 7, 2003	2.0[1]	5.3[1]	...	...	...	...	...	...	...	...
First estimates published for 2003 (4th quarter), Bureau of Labor Statistics release of March 4, 2004	2.2[1]	4.9[1]	4.5[1]	...	...	...	...	...	...	...
After the revisions round in 2003 (2nd quarter), Bureau of Labor Statistics release of August 10, 2004	2.5[1]	4.3[1]	4.5[1]	...	...	...	...	...	...	...
First estimates published for 2004 (4th quarter), Bureau of Labor Statistics release of March 3, 2005	2.5[1]	4.3[1]	4.5[1]	4.0[1]	...	...	...	...	...	...
After the revisions round in 2004 (2nd quarter), Bureau of Labor Statistics release of August 9, 2005	2.5[1]	4.0[1]	3.9[1]	3.4[1]	...	...	...	...	...	...
First estimates published for 2005 (4th quarter), Bureau of Labor Statistics release of March 7, 2006	2.5	4.0	4.1[1]	3.5[1]	2.7[1]	...	...	...	...	...
After the revisions round in 2005 (2nd quarter), Bureau of Labor Statistics release of August 8, 2006	2.6	4.1	3.8[1]	3.1[1]	2.3[1]	...	...	...	...	...

See notes at the end of the table.

Table 1 – continued

Labour productivity, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
First estimates published for 2006 (4th quarter), Bureau of Labor Statistics release of March 6, 2007	2.6	4.1	3.8	3.1[1]	2.1[1]	1.7[1]	...	...	...	...
After the revisions round in 2006 (2nd quarter), Bureau of Labor Statistics release of August 7, 2007	2.6	4.1	3.8	2.9[1]	2.0[1]	1.0[1]	...	...	...	...
First estimates published for 2007 (4th quarter), Bureau of Labor Statistics release of March 5, 2008	2.6	4.1	3.8	2.9	2.0[1]	1.0[1]	1.9[1]	...	...	...
After the revisions round in 2007 (2nd quarter), Bureau of Labor Statistics release of August 8, 2008	2.6	4.1	3.8	2.9	1.8[1]	0.9[1]	1.5[1]	...	...	...
First estimates published for 2008 (4th quarter), Bureau of Labor Statistics release of March 5, 2009	2.6	4.1	3.8	2.9	1.8	0.9	1.6	2.7	...	...
After the revisions round in 2008 (2nd quarter), Bureau of Labor Statistics release of August 11, 2009	3.0	4.5	3.8	2.9	1.7	1.0	1.8	1.9	...	...
First estimates published for 2009 (4th quarter), Bureau of Labor Statistics release of March 4, 2010	3.0	4.5	3.8	2.9	1.7	1.0	1.8[1]	2.1[1]	3.8[1]	...
After the revisions round in 2009 (2nd quarter), Bureau of Labor Statistics release of August 10, 2010	3.0	4.5	3.8	2.9	1.7	0.9	1.5[1]	1.1[1]	3.5[1]	...
First estimates published for 2010 (4th quarter), Bureau of Labor Statistics release of March 3, 2011	3.0	4.5	3.8	2.9	1.7	0.9	1.5	1.1	3.7	3.8
After the revisions round in 2010 (2nd quarter), Bureau of Labor Statistics release of August 9, 2011	3.0	4.5	3.9	2.8	1.7	0.9	1.5	0.7	2.4	4.1
Difference, original and actual estimates[2]	1.0	-0.3	-0.6	-1.2	-1.0	-0.8	-0.4	-2.0	-1.4	0.3

1. This estimate covers the four-year period of annual revisions that arise from the gross domestic product revision cycle. In Canada, the System of National Accounts revisions are usually made available with the release of the first quarter, while in the United States it is published with the preliminary estimates of the second quarter.
2. For some years, the revision process reflects more than the short–term revision round. For example, for 2000, methodological changes were implemented for both hours worked and gross domestic product, which had the effect of exaggerating the impact of short–term revisions (for this year, see Table 1 in Kaci, and Maynard (2009)).

Source(s): Statistics Canada; Bureau of Labor Statistics.

Table 2
Real gross domestic product, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
Canada										
First estimates published for 2001 (4th quarter), The Daily release of March 14, 2002	1.2[1]	...	...	...	...	...	...	...	...	...
After the revisions round in 2001 (1st quarter), The Daily release of June 14, 2002	0.9[1]	...	...	...	...	...	...	...	...	...
First estimates published for 2002 (4th quarter), The Daily release of March 14, 2003	0.9[1]	3.8[1]	...	...	...	...	...	...	...	...
After the revisions round in 2002 (1st quarter), The Daily release of June 12, 2003	1.3[1]	3.4[1]	...	...	...	...	...	...	...	...
First estimates published for 2003 (4th quarter), The Daily release of March 12, 2004	1.3[1]	3.4[1]	1.5[1]	...	...	...	...	...	...	...
After the revisions round in 2003 (1st quarter), The Daily release of June 11, 2004	1.8[1]	3.6[1]	1.7[1]	...	...	...	...	...	...	...
First estimates published for 2004 (4th quarter), The Daily release of March 10, 2005	1.8[1]	3.6[1]	1.7[1]	2.9[1]	...	...	...	...	...	...
After the revisions round in 2004 (1st quarter), The Daily release of June 9, 2005	1.6[1]	3.2[1]	1.6[1]	3.1[1]	...	...	...	...	...	...
First estimates published for 2005 (4th quarter), The Daily release of April 26, 2006	1.6	3.2[1]	1.6[1]	3.1[1]	2.8[1]	...	...	...	...	...
After the revisions round in 2005 (1st quarter), The Daily release of June 8, 2006	1.6	3.1[1]	1.4	3.3[1]	3.0[1]	...	...	...	...	...
First estimates published for 2006 (4th quarter), The Daily release of March 12, 2007	1.6	3.1	1.4[1]	3.3[1]	3.0[1]	2.7[1]	...	...	...	...
After the revisions round in 2006 (1st quarter), The Daily release of June 12, 2007	1.6	3.0	1.5[1]	3.2[1]	3.2[1]	2.6[1]	...	...	...	...
First estimates published for 2007 (4th quarter), The Daily release of March 14, 2008	1.6	3.0	1.5	3.2[1]	3.2[1]	2.7[1]	2.6[1]	...	...	...
After the revisions round in 2007 (1st quarter), The Daily release of June 13, 2008	1.6	3.0	1.5	3.2[1]	2.9[1]	3.1[1]	2.6[1]	...	...	...
First estimates published for 2008 (4th quarter), The Daily release of March 17, 2009	1.6	3.0	1.5	3.2	2.9[1]	3.1[1]	2.6[1]	-0.3[1]	...	...
After the revisions round in 2008 (1st quarter), The Daily release of June 16, 2009	1.6	3.0	1.5	3.2	3.2[1]	2.7[1]	2.3[1]	-0.4[1]	...	...
First estimates published for 2009 (4th quarter), The Daily release of March 16, 2010	1.6	3.0	1.5	3.2	3.2	2.7[1]	2.3[1]	-0.4[1]	-4.2[1]	...
After the revisions round in 2009 (1st quarter), The Daily release of June 15, 2010	1.6	3.0	1.5	3.2	3.2	2.7[1]	1.9[1]	-0.3[1]	-4.0[1]	...
First estimates published for 2010 (4th quarter), The Daily release of March 15, 2010	1.6	3.0	1.5	3.2	3.2	2.7	1.9	-0.3[1]	-4.0[1]	3.2[1]
After the revisions round in 2010 (1st quarter), The Daily release of June 10, 2011	1.6	3.0	1.5	3.2	3.2	2.7	1.9	-0.3[1]	-4.5[1]	3.4[1]
Difference, original and actual estimates	0.4	-0.8	0.0	0.3	0.4	0.0	-0.7	0.0	-0.3	0.2
United States										
First estimates published for 2001 (4th quarter), Bureau of Labor Statistics release of May 31, 2002	0.9[1]	...	...	...	...	...	...	...	...	...
After the revisions round in 2001 (2nd quarter), Bureau of Labor Statistics release of August 9, 2002	-0.1[1]	...	...	...	...	...	...	...	...	...
First estimates published for 2002 (4th quarter), Bureau of Labor Statistics release of June 4, 2003	-0.1[1]	2.7[1]	...	...	...	...	...	...	...	...
After the revisions round in 2002 (2nd quarter), Bureau of Labor Statistics release of August 7, 2003	-0.1[1]	2.7[1]	...	...	...	...	...	...	...	...
First estimates published for 2003 (4th quarter), Bureau of Labor Statistics release of March 4, 2004	0.1[1]	2.3[1]	3.7[1]	...	...	...	...	...	...	...
After the revisions round in 2003 (2nd quarter), Bureau of Labor Statistics release of August 10, 2004	0.3[1]	1.8[1]	3.8[1]	...	...	...	...	...	...	...
First estimates published for 2004 (4th quarter), Bureau of Labor Statistics release of March 3, 2005	0.3[1]	1.8[1]	3.8[1]	5.1[1]	...	...	...	...	...	...
After the revisions round in 2004 (2nd quarter), Bureau of Labor Statistics release of August 9, 2005	0.3[1]	1.5[1]	3.4[1]	4.7[1]	...	...	...	...	...	...
First estimates published for 2005 (4th quarter), Bureau of Labor Statistics release of March 7, 2006	0.3	1.5	3.4[1]	4.8[1]	4.0[1]	...	...	...	...	...
After the revisions round in 2005 (2nd quarter), Bureau of Labor Statistics release of August 8, 2006	0.3	1.5	3.1[1]	4.4[1]	3.7[1]	...	...	...	...	...
First estimates published for 2006 (4th quarter), Bureau of Labor Statistics release of March 6, 2007	0.3	1.5	3.1	4.4[1]	3.7[1]	3.8[1]	...	...	...	...

See notes at the end of the table.

Table 2 – continued

Real gross domestic product, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
After the revisions round in 2006 (2nd quarter), Bureau of Labor Statistics release of August 7, 2007	0.3	1.5	3.1	4.2[1]	3.6[1]	3.1[1]	...	...	...	...
First estimates published for 2007 (4th quarter), Bureau of Labor Statistics release of March 5, 2008	0.3	1.5	3.1	4.2	3.6[1]	3.1[1]	2.3[1]	...	...	...
After the revisions round in 2007 (2nd quarter), Bureau of Labor Statistics release of August 8, 2008	0.3	1.5	3.1	4.2	3.5[1]	3.0[1]	2.0[1]	...	...	...
First estimates published for 2008 (4th quarter), Bureau of Labor Statistics release of March 5, 2009	0.3	1.5	3.1	4.2	3.5	3.0	2.0	0.8	...	...
After the revisions round in 2008 (2nd quarter), Bureau of Labor Statistics release of August 11, 2009	0.8	2.0	3.1	4.2	3.4	3.1	2.2	0.0	...	...
First estimates published for 2009 (4th quarter), Bureau of Labor Statistics release of March 4, 2010	0.8	2.0	3.1	4.2	3.4	3.1	2.2[1]	0.0[1]	-3.5[1]	...
After the revisions round in 2009 (2nd quarter), Bureau of Labor Statistics release of August 10, 2010	0.8	2.0	3.1	4.2	3.4	3.1	2.0[1]	-0.9[1]	-3.7[1]	...
First estimates published for 2010 (4th quarter), Bureau of Labor Statistics release of March 3, 2011	0.8	2.0	3.1	4.2	3.4	3.1	2.0	-0.9	-3.7	3.7
After the revisions round in 2010 (2nd quarter), Bureau of Labor Statistics release of August 9, 2011	0.8	2.0	3.1	4.0	3.4	3.0	2.0	-1.3	-4.9	3.9
Difference, original and actual estimates	-0.1	-0.7	-0.6	-1.1	-0.6	-0.8	-0.3	-2.1	-1.4	0.2

1. This estimate covers the four-year period of annual revisions that arise from the gross domestic product revision cycle. In Canada, the System of National Accounts revisions are usually made available with the release of the first quarter, while in the United States it is published with the preliminary estimates of the second quarter.

Source(s): Statistics Canada; Bureau of Labor Statistics.

Table 3
Hours worked, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
Canada										
First estimates published for 2001 (4th quarter), The Daily release of March 14, 2002	0.0	...	...	...	...	...	...	...	...	...
After the revisions round in 2001 (1st quarter), The Daily release of June 14, 2002	0.1	...	...	...	...	...	...	...	...	...
First estimates published for 2002 (4th quarter), The Daily release of March 14, 2003	0.1	1.5	...	...	...	...	...	...	...	...
After the revisions round in 2002 (1st quarter), The Daily release of June 12, 2003	0.1	1.5	...	...	...	...	...	...	...	...
First estimates published for 2003 (4th quarter), The Daily release of March 12, 2004	0.4	1.4	1.5	...	...	...	...	...	...	...
After the revisions round in 2003 (1st quarter), The Daily release of June 11, 2004	0.4	1.4	1.3	...	...	...	...	...	...	...
First estimates published for 2004 (4th quarter), The Daily release of March 10, 2005	0.1	1.1	1.5	2.8	...	...	...	...	...	...
After the revisions round in 2004 (1st quarter), The Daily release of June 9, 2005	0.1	1.1	1.5	3.0	...	...	...	...	...	...
First estimates published for 2005 (4th quarter), The Daily release of April 26, 2006	0.5	1.6	1.3	3.1	0.6	...	...	...	...	...
After the revisions round in 2005 (1st quarter), The Daily release of June 8, 2006	0.5	1.6	1.3	3.1	0.6	...	...	...	...	...
First estimates published for 2006 (4th quarter), The Daily release of March 12, 2007	0.5	1.6	1.4	2.9	1.0	1.5	...	...	...	...
After the revisions round in 2006 (1st quarter), The Daily release of June 12, 2007	0.5	1.6	1.3	3.1	0.7	1.5	...	...	...	...
First estimates published for 2007 (4th quarter), The Daily release of March 14, 2008	0.5	1.6	1.3	3.2	0.7	1.5	2.2	...	...	...
After the revisions round in 2007 (3rd quarter), The Daily release of December 10, 2008	0.5	1.6	1.3	3.0	0.8	1.6	1.9	...	...	...
First estimates published for 2008 (4th quarter), The Daily release of March 17, 2009	0.5	1.5	1.3	3.0	0.8	1.6	1.9	0.8	...	...
After the revisions round in 2008 (1st quarter), The Daily release of June 16, 2009	0.5	1.5	1.3	3.0	0.7	1.6	1.9	0.8	...	...
First estimates published for 2009 (4th quarter), The Daily release of March 16, 2010	0.5	1.5	1.3	3.0	0.7	1.6	1.9	0.8	-4.3	...
After the revisions round in 2009 (1st quarter), The Daily release of June 15, 2010	0.5	1.5	1.3	3.0	0.7	1.6	1.9	0.6	-4.4	...
First estimates published for 2010 (4th quarter), The Daily release of March 15, 2010	0.5	1.5	1.3	3.0	0.7	1.6	1.9	0.6	-4.4	1.8
After the revisions round in 2010 (3rd quarter), The Daily release of December 9, 2011	0.3	1.1	1.4	3.0	0.5	1.4	2.1	0.5	-4.5	1.9
Difference, original and actual estimates [1]	0.3	-0.4	-0.1	0.2	-0.1	-0.1	-0.1	-0.3	-0.2	0.1
United States										
First estimates published for 2001 (4th quarter), Bureau of Labor Statistics release of May 31, 2002	-1.1	...	...	...	...	...	...	...	...	
After the revisions round in 2001 (2nd quarter), Bureau of Labor Statistics release of August 9, 2002	-1.3	...	...	...	...	...	...	...	...	
First estimates published for 2002 (4th quarter), Bureau of Labor Statistics release of June 4, 2003	-1.3	-2.0	...	...	...	...	...	...	...	
After the revisions round in 2002 (2nd quarter), Bureau of Labor Statistics release of August 7, 2003	-2.1	-2.5	...	...	...	...	...	...	...	
First estimates published for 2003 (4th quarter), Bureau of Labor Statistics release of March 4, 2004	-2.1	-2.5	-0.8	...	...	...	...	...	...	
After the revisions round in 2003 (2nd quarter), Bureau of Labor Statistics release of August 10, 2004	-2.2	-2.4	-0.6	...	...	...	...	...	...	
First estimates published for 2004 (4th quarter), Bureau of Labor Statistics release of March 3, 2005	-2.2	-2.4	-0.6	1.2	...	...	...	...	...	

See notes at the end of the table.

Table 3 – continued

Hours worked, business sector, annual change, Canada and United States

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
	percent									
After the revisions round in 2004 (2nd quarter), Bureau of Labor Statistics release of August 9, 2005	-2.2	-2.4	-0.5	1.3	...	...	...	...	...	
First estimates published for 2005 (4th quarter), Bureau of Labor Statistics release of March 7, 2006	-2.1	-2.4	-0.7	1.3	1.3	...	...	...	...	
After the revisions round in 2005 (2nd quarter), Bureau of Labor Statistics release of August 8, 2006	-2.2	-2.5	-0.7	1.3	1.4	...	...	...	...	
First estimates published for 2006 (4th quarter), Bureau of Labor Statistics release of March 6, 2007	-2.2	-2.5	-0.7	1.3	1.6	2.1	...	...	...	
After the revisions round in 2006 (2nd quarter), Bureau of Labor Statistics release of August 7, 2007	-2.2	-2.5	-0.7	1.3	1.6	2.1	...	...	...	
First estimates published for 2007 (4th quarter), Bureau of Labor Statistics release of March 5, 2008	-2.2	-2.5	-0.7	1.3	1.6	2.1	0.4	...	...	
After the revisions round in 2007 (2nd quarter), Bureau of Labor Statistics release of August 8, 2008	-2.2	-2.5	-0.7	1.3	1.6	2.1	0.5	...	...	
First estimates published for 2008 (4th quarter), Bureau of Labor Statistics release of March 5, 2009	-2.2	-2.5	-0.7	1.2	1.7	2.1	0.5	-1.9	...	
After the revisions round in 2008 (2nd quarter), Bureau of Labor Statistics release of August 11, 2009	-2.1	-2.4	-0.7	1.2	1.6	2.1	0.4	-1.9	...	
First estimates published for 2009 (4th quarter), Bureau of Labor Statistics release of March 4, 2010	-2.1	-2.4	-0.7	1.2	1.6	2.1	0.4	-2.1	-7.0	
After the revisions round in 2009 (2nd quarter), Bureau of Labor Statistics release of August 10, 2010	-2.1	-2.4	-0.7	1.2	1.7	2.1	0.5	-2.0	-6.9	
First estimates published for 2010 (4th quarter), Bureau of Labor Statistics release of March 3, 2011	-2.1	-2.4	-0.7	1.2	1.7	2.1	0.5	-2.0	-7.1	-0.2
After the revisions round in 2010 (2nd quarter), Bureau of Labor Statistics release of August 9, 2011	-2.1	-2.4	-0.7	1.2	1.7	2.1	0.5	-2.0	-7.1	-0.1
Difference, original and actual estimates [1]	-1.0	-0.4	0.1	0.0	0.4	0.0	0.1	-0.1	-0.1	0.1

1. For some years, revision process reflects more than short term revision round. For example, for 2000, methodological changes were implemented for both hours worked and gross domestic product, which had the effect of exaggerating the impact of short term revisions (for this year, see Table 3 in Kaci, and Maynard (2009)).

Source(s): Statistics Canada; Bureau of Labor Statistics.

Table 4
Average annual growth of labour productivity in the business sector before and after revision, Canada and United States

	Canada		United States	
	Before revision	After revision	Before revision	After revision
	percent			
1981 to 2010	1.3	1.4	2.2	2.2
1981 to 2000	1.6	1.7	2.0	2.0
1981 to 1990	1.3	1.3	1.7	1.7
1990 to 2000	1.9	2.1	2.2	2.2
2000 to 2010	0.7	0.8	2.7	2.5
2008 to 2010	0.9	0.7	3.8	3.3
2008	-0.9	-0.8	1.1	0.7
2009	0.4	0.0	3.7	2.4
2010	1.4	1.5	3.9	4.1

Source(s): Statistics Canada. 2011. "Labour productivity, hourly compensation and unit labour cost, Third quarter 2011." The Daily. December 9 (Canadian data); Bureau of Labor Statistics. 2011. "Productivity and Costs, Second quarter 2011." NEWS, August 9 (U.S. data)

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